

Vol. 1 No. 2
February 1986

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\$1.50

PACKET RADIO MAGAZINE

Dedicated to the Advancement of Packet Radio

ARRL Packet-Radio Conference

The Fifth ARRL Amateur Radio Computer Networking Conference will be hosted by the Florida Amateur Digital Communications Association (FADCA) from 8:30 AM to 4:30 PM on Sunday, March 9, 1986. It is being held at the Florida State Convention's Hamcation and Computer Show, March 7-9, at the Expo Center, 500 W Livingston St, Orlando, FL.

The Conference will feature technical papers presented by internationally known packet-radio pioneers. Printed proceedings will be available at the Conference and by mail order from the American Radio Relay League.

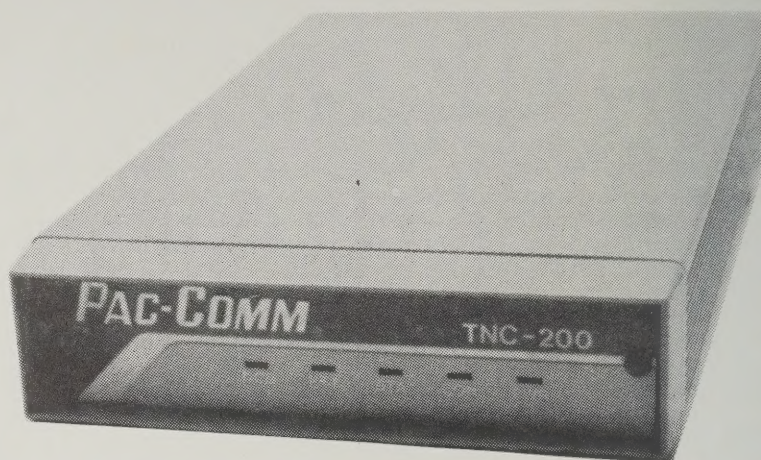
On Friday evening and Saturday morning, FADCA will hold SOUTHNET meetings, packet-radio tutorials and demonstrations. This will be the event for Florida packeteers to tell you about their packet achievements.

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PACKET RADIO MAGAZINE

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PACKET RADIO MAGAZINE is published monthly by the Florida Amateur Digital Communications Association, Inc. (FADCA), 812 Childers Loop, Brandon, FL 33511. (813) 689-3355.

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Subscriptions to PACKET RADIO MAGAZINE are available through participating clubs. Check the newsletter section for a club in your area, or contact FADCA for individual membership. FADCA membership dues (US Dollars): United States = \$15.00, Canada = \$18.00, Foreign (airmail) \$25.00. Major clubs desiring to participate in PRM should contact the FADCA office.

News and Views

Gwyn Reedy, W1BEL

PRM News

The reaction to the first issue of PRM has been very positive, and several new subscriptions are coming in the mail each day. The cost of producing the first issue was somewhat over budget, so this issue contains a lesser number of pages. It should be possible to go back to 20 pages in subsequent issues due to the growing circulation.

Producing PRM is a time intensive task. The lateness of both issues is due to my personal work commitments and the increased size of PRM. (Even this issue is larger than the largest FADCA>BEACON ever was if you count the covers as pages.) I am working hard to better organize the production process so that more timely publication can be assured. I would like to publicly acknowledge the long hours contributed by my wife, Linda, to processing membership applications, establishing a new computerized mailing list, and hand addressing labels for members not yet in the database.

There will be an issue monthly. If you do not get your issue by the middle of the following month, please write to inform us of the problem. Third Class mail is not forwarded, so please give early notice of any address changes. Replacement issues are sent first class, but at more than one dollar each, I hope not too many will have to be sent. In that regard, nearly all complimentary issues will be discontinued beginning with this issue. If you enjoy the PRM, please subscribe.....

Club Editors, please submit your material as early as you can. The timing of the magazine is now dependent on the efforts of half a dozen editors, so if each one is only late twice per year, every issue could possibly be delayed. The deadline is nominally the last Friday of the preceeding month. Plan on March 14th and April 4th to catch up, then April 25th will have us back on schedule.

Photographers - We are looking for packet radio related photos for PRM covers. Please send in your good shots of equipment, packet happenings etc.

Our thanks to the **AMATEUR RADIO NEWS SERVICE** for their awarding the FADCA>BEACON a rating of excellent in the annual newsletter competition.

85-105

The hottest news this month is the activities of an FCC monitoring station in regard to autoforwarding packet message systems on HF. Numerous sources have reported that K4TKU in Miami was cited for unattended operation. The correct story is that the monitoring station did call his home after copying his MailBox operation. His wife answered the phone and divulged that he was not home, but he was **NOT** cited. The K4TKU MailBox is still in operation, but now only when attended.

One point I wish to make here is that the monitoring station was not acting because of the FCC Report and Order about automatic control of digital communication equipment, popularly called 85-105. No doubt the monitoring activity merely resulted from acquisition of a TNC!! Automatic operation has always been illegal, despite years of RTTY and AMTOR MSO activity that caused amateurs to 'forget' the rules. The problem caused by 85-105 is the new, more strict definition of third party traffic which seems very similar to the interpretation made by European and other foreign governments. This interpretation does not exempt communications by other amateurs from the definition of 'third-party.'

One final comment: Be sure you understand 85-105 (or any other FCC action) before you write in protest. Letters to the FCC or to your congressman can help to bring attention to an unsatisfactory situation, but emotional and/or misinformed letters do not do any good. In fact they probably offset the good letters that get sent in and cause the whole situation to be ignored.

FIFTH AMATEUR RADIO COMPUTER NETWORKING CONFERENCE

Don't forget the big packet weekend at Orlando (see inside rear cover for hamfest details). There will be a **SOUTHNET** room open Friday evening and all day Saturday. Several meetings are planned, including a general **SOUTHNET** meeting at Noon, Saturday, and FADCA Packet Frequency Coordinating Committee and Networking Committee meetings during that afternoon. The theme of this **SOUTHNET** is 'show and tell' and eyeball QSOs. No formal talks are planned, but bring your equipment and ideas and talk them up. The Networking conference will be Sunday 8:30 to 4:30 in the same room. Be sure to attend.

- PRM -

Cactus Corner

de WA7GXD

This month we will touch on the TAPR Annual Meeting, the LSC-10, packet development and a personal challenge for 1986.

TAPR ANNUAL MEETING

The TAPR Annual Meeting was, by all reports, a success. A large gathering of the packet faithful from all over the country convened to hear about packet developments, meet other people and generally have a good time.

Presentations were made on packet mailboxes, SAREX 2 (a packet-radio-aboard-the-space-shuttle project that we still hope will happen), OSCAR 11 (an operational, store-and-forward packet mailbox satellite orbited in March of 1984 and now entering its operational phase) and JAS-1 (the Japanese Amateur satellite that will be launched in August, with a 1 megabyte packet mailbox on board). In addition, the new AEA high-performance HF modem with tuning indicator usable with ANY 1200 baud TNC was shown, a TNC 2-based dual-port digipeater was demonstrated, a possible high-speed digital radio design was discussed, a blind packet operator demonstrated a braille-based computer... the list goes on.

The day after the meeting, the Board of Directors met in closed session and accomplished a tremendous amount of business. Among other decisions reached was one committing TAPR to becoming involved in regulatory issues (such as the now infamous 85.105 ruling that effectively stops much of the packet mailbox and automatic message forwarding activity) and a more formal mechanism for proposing and approving packet-related projects.

More details on the Board meeting next time, space permitting.

LSC-10 PACKET OPERATING ACCESSORY

Unveiled at the TAPR Annual Meeting by Executive Vice President Peter J. Eaton, the LSC-10 met with tremendous acceptance. Pete was afforded the honor since he was the LSC-10 Project Coordinator.

True to form with such "secret" projects, Pete sneakily previewed the LSC-10 around the coffee pot at the beginning of the meeting. "It seemed like the appropriate place!" was Pete's defense for this action.

Initial purchasers of this deluxe station accessory agreed almost to a person that it was indeed all it was represented to be in the press releases. No one complained about the lack of detailed operating instructions. "More intuitive than a Macintosh!" was the general consensus among the IBM PC crowd.

In fact, the unit was determined to be so intuitive, and the user interface so friendly, that the documentation effort has been scrapped! There will be no instruction manual printed!

To the awed assemblage of packet pioneers, thrill seekers, curious and others gathered in the hushed auditorium, Pete revealed the convoluted encoding of the product's part number.

Pete emphasized the all solid-state construction, the use of ceramic rather than epoxy-plastic, the obvious performance that results in high ambient temperatures and other facets of the LSC-10 system design.

And the field testing confirmed our fondest hopes -- the LSC-10 appears to work well for the AMTOR, RTTY and ASCII communicator as well as the packet variety! In fact, Pete explained how it could be used in a CW station, and demonstrated it's advantages for SSB and other "analog" communications modes.

The Liquid Stimulant Container - 10 ounce is available in limited quantities from TAPR for \$5.00.

This coffee cup (!) is a very light tan in color, with dark brown lettering "I'm A Packeteer!" and the TAPR Logo (just like the famous self-stick "buttons" handed out by TAPR at hamfests) on opposite sides of the cup.

PACKET DEVELOPMENT

Amazing though it may seem, there are folks who claim that the packet world collapsed when TAPR appeared and that TAPR squelched all subsequent packet development because the Alpha, and subsequent, TNCs were not based on the 8085 and 8273 Intel parts!

I bring this up only because I have noticed a disturbing trend in conversations with other packeteers in my travels and telephone excursions.

Let me clarify a "telephone excursion." Whenever I get an angry letter, or a request for help on a problem that I don't think can be handled easily by mail, I usually attempt to call the person who wrote. This isn't always possible, but I do try. I wind up with a lot of valuable feedback in this manner.

Back to the point.

Perhaps I am just too dense to understand, but how is it that TAPR, selecting the 6502 processor and later the 6809, prevented folks who owned other TNCs from protocol and software development? How did making available complete Level Two controllers stop folks from designing and implementing Level Three and higher protocols for other TNCs?

The AMRAD and PPRS guys ported AX.25 L2 to the VADCG TNC about the time that TAPR software developers ported it to the Beta TNC. N2WX, KE3Z and KA9Q, to name a few, busily developed all sorts of code (at levels 2, 3 and 4) for the Xerox 820 board -- the fact that the TAPR TNC 1 used a 6809 didn't stop them!

And in case you've heard a vicious rumor that TAPR abandoned "all those Alpha board owners," let me point out that, when the Beta board became available, TAPR bought back all the Alpha boards - every one of them - from their owners at 100% of the price the owners paid, bar none. All twelve of them!

The Peripatetic Packeteer

Steve Peterson, KI7L

I knew it would happen sooner or later; it always does. Human nature has raised it's ugly head again. For Americans who profess a belief in freedom it seems that few understand what freedom is really all about.

Amateur radio and packet radio in particular are hobbies that exploit the idea that humans should communicate. Indeed, it doesn't make a lot of sense to invest thousands of dollars, risk the wrath of loved ones and neighbors, and spend countless hours dreaming about better ways to launch radio waves into the nonexistent ether if you don't want to communicate with a fellow human being. Why is it then that we hear over our radios and eyeball to eyeball, hams running each other down? Human nature?

I happen to be net control of our local packet net but I am sure that all net control stations have had the same experience of some unidentified station belching, cursing, keying up on the net frequency or otherwise disrupting the operation of the net. These same individuals seem also keen to stab people in the back, at least verbally, whenever possible. What this achieves is beyond me!

This sort of behavior I guess is common to the great mass of society and one is probably more disappointed when it occurs in the ham community because we hope that the extra effort required to obtain a license somehow confers special responsibilities on the individual. I found similar behavior among scientists where others of different persuasion were excluded from publishing their ideas. I guess training and testing are still unsuccessful in weeding out petty humans.

It is particularly annoying to confront such a situation when one is trying to establish interstate packet links. To hear one ham say, "Don't tell those guys who run the repeater site that I am involved in your group because they hate my guts" is a sad commentary on the state of ham radio. Individuals who have been major factors in the development of this aspect of our hobby are also prime targets of backstabbing.

What can be done? Ignore the belchers, and when you hear someone running someone else down, walk away or encourage them to take on as much responsibility as the ham they don't like. Ham radio progresses because individuals take on responsibility for projects, hopefully with little glory in mind. These few are amateur radio's greatest resource. We all don't have to like them as individuals but neither do we have to lower ourselves and disrupt their activities. In ham radio particularly, tolerance of the other guy's opinion is paramount. That's how we learn of new things and places. Without tolerance we are lost as a group and as a society.

Freedom: The right to do what you want so long as it does not interfere with the other persons right to do what that individual wants to do. This definition is reflexive, it applies to all. If all of us adopted that definition our society and understanding of our fellow man would have to improve.

Our country has decided that we amateurs should be given a special privilege, that of advancing the art and science radio communication. If some of us act at a level below that responsibility, we as a group may find ourselves without that privilege. Is it so difficult to treat the other fellow with a little respect even if his ideas and methods are different than our own? Surely we want our ideas, methods and personalities treated with respect. In order to earn and maintain that respect we must treat the other person equally or better.

Those of us involved in packet radio at this time are pioneers of a sort even if all we do is participate in using this new medium. We should all try to rise to the occasion and contribute and be tolerant of others doing their own thing just as we are ourselves. Amateur radio will be better for that effort.

73 Steve, KI7L

- PRM -

To: Anyone following NNC Development
Fm: Lyle
Re: NNC Test Board Status

A mailing will be made shortly to everyone who has specifically submitted their name for participation in the Alpha and/or Beta test phases of the TAPR NNC project.

30 boards are in progress at the PC house, with delivery expected about 10 March.

Today (12 Feb 86) I managed to rework the BIOS source and do a SYSGEN so the system fully recognizes the actual CPU clock, doesn't waste time with RAM refreshes and drives the PIO as the system LIST device under Mode 2 interrupt control.

If you think you are on the test list and don't see something in your mailbox from TAPR in the next 10 days, contact me via DRNET or call the office at (602) 746-1166.

Lyle

TO: All interested packeteers
FROM: TAPR
RE: New Office Hours

Effective 14 February 1986, the TAPR office will be open from 9 AM until 5:30 PM TUESDAY through FRIDAY. If you have any reason to call the office, please remember that it will no longer be open on Mondays.

Thank you.

Kantronics is offering a software upgrade for the KPC1 which provides multiple connection capability and runs AX.25 v 2.0. The upgrade includes a larger EPROM, larger NOVRAM, new manual, and many new commands. Contact Kantronics at 1202 E. 23rd St., Lawrence, KS 66046. (913) 842-7745.

PAK-COMM Version 1B: A Review

Reviewed by Lee Love - N4LXI
954 E. Lexington St.
Lakeland, FL 33801

In my search for the perfect packet radio terminal program I have found that ham radio programs for the IBM-PC are a little scarce. As many of you already know the Commodore is the most prevalent computer in ham radio circles, and due to its price an obvious choice. So when I was approached with an opportunity to review a new MS-DOS Packet program I was thrilled.

The first thing that I was struck with after getting this program in my hot little hands was the company. The program is produced by Kalt & Associates in, of all places, Anchorage, Alaska. Now I guess there is no reason for me to find that strange. It's just that you don't hear of too many software authors from Alaska. Now I have never been to Alaska but I imagine that for a good part of the year there would be no distractions from outside activities. The other thing that rang a bell with this product was the name "PAK-COMM." Now where have I heard that name? Some group of knowledgeable, enthusiastic entrepreneurs from Tampa I think? No, Kalt & Associates' PAK-COMM has no relationship to our local "Pac-Comm" Packet Radio Systems in Tampa.

THE SOFTWARE

The folks at Kalt & Assoc. have put a lot of thought and planning in to the Pak-Comm software. A few of the features that have been included are things like:

Page Scrolling - you can scroll through received text with complete cursor control.

Split Screens - Separate screens are allowed for transmit and receive, with line buffering for transmit. You are also given the flexibility to have the split screen appear within a certain range on your screen.

File Transfers - Are supported using both the transparent mode of your TNC or the popular telephone protocol X-Modem.

A special note is necessary concerning the use of X-Modem. Due to the lack of standards for transmitting binary files over packet radio there are a few parameters that must be established before using this mode. The X-Modem protocol sets special parameters and codes to tell the receiving program when the file transfer will start and end. Because (at this time) we do not have this ability with packet, it is very important when using X-Modem to tell the receiving station the exact size of the file being sent. This will tell the receiving station when to close the file and save it to disk. Also Kalt & Assoc. explains in the manual that "We have sent files using X-modem protocol over a packet radio link, but there were many changes made to the timing commands within the X-modem protocol and the controller itself. We were able to make it function, but it is slow."

Command Macros - The Alt function keys are available to set up strings of up to 250 characters that are sent to the TNC in one keystroke. All control characters are supported, and special characters send carriage returns.

Receive High Intensity - A simple feature that I like is the ability to have all incoming received text displayed in high-intensity video. I found this easier to use in some cases than the split screen. This can be toggled ON or OFF as desired.

Fox Message - By pressing the ALT F key this feature will allow a one line message to be sent to the TNC. This can be handy for sending test messages when testing path conditions.

There are many other handy features with Pak-Comm that I won't describe in detail, but a few are: Time/Date Stamp, Help Screens, Beep Control and Log File function.

Now when evaluating packet software it is necessary to use the software you are currently running on packet as a comparison. The two MS-DOS programs I use vary considerable in functionality. One is a very good program called Qmodem. Qmodem is a public domain modem terminal program that (in my opinion) runs rings around many commercial programs. The second program, and my personal favorite is a \$195.00 commercial program by MicroStuff called Crosstalk. It is very easy to get into the trap of finding any new program harder to use than the one we are most familiar with. I have tried very hard not let this happen when comparing software. So the criteria I used here is "Ease of Use" and "Functionality".

FUNCTIONALITY

The Pak-Comm program is a very well done piece of software. It seems to be bug free and error trapping is handled gracefully. But the thing I look for in packet software is features designed to take advantages of my TNC. The Pak-Comm software has done this in only a few areas. The nicest but the hardest to use is the "Initialization feature". The initialization file is a very powerful feature of the Pak-Comm system. It is made up of a 16 line text file that contains the pre-defined communications parameters, file transfer protocols, date/time stamp options, call sign, and command macros. The first 6 lines are the most critical to the operation of the program so I will only cover those parameters.

A typical initialization file would look like this :

```
1,4800,8,2,1,128,4,2,2,5,5,68
13, Send ,3,Command,22, Pass ,18,ReDspl,5,0
6,15,1,4,182,12,15,128,8196,2048
^C
Lee - N4LXI * Lakeland, Fla.
Local
conmode co$
C N4LXI
```

```

DISP L$
UN BEACON VIA ORL,K4GSO-7,GNV
C K4AHO VIA ORL$
C KC2FF VIA TPA,KC2FF-7
C K4OZS VIA K4GSO-7
disp$
CONVERSE$
MCON O
MONITOR
***** End of File *****
^Z

```

To explain in a little more detail what all this cryptic data means we will take a look at the first line of the initialization file.

Line ONE - Contains Communications Parameters and Flags

1,4800,8,2,1,128,4,2,2,5,5,68

Position	Function	
1	PORT NUMBER	1,
2	PORT SPEED	4800,
3	NUMBER OF DATA BITS	8,
4	PARITY	2,
5	NUMBER OF STOP BITS	1,
6	PACKET SIZE OF FILES	128,
7	TIME DELAY FOR FILES	4,
8	FUNCTION KEY TOGGLE	2,
9	HIGHLIGHT TOGGLE	2,
10	DATE FORMAT	5,
11	TIME FORMAT	5,
12	NEWLINE MARKER	68,

Without going into a lot of detail the next 5 lines contain a number of handy features.

LINE TWO - Function key option, split screen options & others

LINE THREE - File transfer parameters and misc.

LINE FOUR - Initialization string

LINE FIVE - Operators name for date-time stamp

LINE SIX - Text for time stamp identification

LINE 7-15 - Used for ALT function key command macros.

Pak-Comm comes with a default file but it will be necessary to edit this file for your call, baud rate, etc. It is important to note that you must use a text editor that saves its files in an ASCII format. Using any other word processor that saves its file in a non-ascii format will cause the program not to run.

Although the initialization file is one of the nicest features, it is also the one I have the most complaints about. It is not uncommon for communications programs to maintain a parameter file but changing these functions should be accomplished from a menu. A simple menu system that would display the current settings and give you the ability to change the ones of your choice. The terminal program should then take care of saving this parameter file, not the operator. Again in all fairness to Kalt & Associates the manual is laid out in a very organized manner and the Initialization section occupies 16 pages of the 57 page manual. There are plenty of examples and even though I would like to see this improved, I had no problems editing the file with the "edlin" line editor that comes with MS-DOS.

Speaking of the manual, it is laid out in a spiral bound format. The sections are printed in different color paper which makes it easy to find the subject you are interested in.

A few other niceties of this program are the "LOG FILE" key that will allow you to open a file on disk. This file will then be filled with any text that comes across your screen. The Time/Date stamp is helpful for pre-TNC2s. And the Split Screen is something I would like to see on more terminal programs.

MACHINE COMPATIBILITY

The Pak-Comm program is designed to run on any IBM PC/XT/AT, JR or IBM PC compatible that has 256k of memory. When running on the PC-jr. Kalt & Assoc. point out that the jr. must be an EXPANDED PC jr. not the 64k or 128k machine. They can be contacted for a modified version of Pak-Comm with reduced receive screen size for non-expanded PC jrs.

The Pak-Comm packet terminal program sells for \$49.95 and is not copy protected. The program is available by contacting

Kalt & Associates
2440 E. Tudor Rd. Suite #138
Anchorage, Alaska 99507
907-248-0133

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Cactus Corner continued from page 2.

A CHALLENGE

Packet is fast becoming the mode of choice for Amateur digital communications. A lot more work needs to be done in development than has been done since day one in this field.

PRM is an outstanding example of cooperative action; a single publication serving as a focal point of communication for many regional organizations.

A lot of exciting developments will occur this year. If all goes well, we will have two satellites with special packet equipment on board; OSCAR-11 will have entered its operational phase as a PACSAT prototype; the NNC will sprout on our high places, with networking in its ROMs; a digital radio will be designed, debugged and distributed; prices will continue to erode, making the cost of entry for packet even lower, further encouraging growth and attracting newcomers to the Amateur ranks.

Why not set a personal goal this year? Locate a non-Amateur and become an Elmer. Bring him into the Amateur fold -- and hook him on packet!

Cheers!

(Next month: more on the Network Node Controller project...)

FADCA MEMBERSHIP CONTEST

Two persons/groups almost had enough new FADCA members to win the TAPR TNC-2 Membership Contest Prize. The contest brought about 35 new members into the club. I feel the contest prize should be awarded, so we'll have some kind of competition at the Orlando SOUTHNET to determine which of the two leading contestants should receive the prize. Gwyn.

File Transfer Protocol For Packet Radio

Jack Botner, VE3LNY May, 1985

[The following description of a File Transfer Protocol was taken from the packet data library on Compuserve. It handles text and binary files, is not dependent on host operating systems, and has been implemented on IBM-PC PC/MSDOS (Jack Botner, VE3LNY) and used in a CP/M 2.2 TNC communications program, called X3-HOST, for a TNC that supports X.3/X.28, (John Vandenberg, VE3DVV) ed.]

When transferring files from one packet station to another, it is very convenient to have an automated process to perform the transfer. This is particularly useful when a binary file is being sent, since it is difficult to tell where the data begins and ends, and harder still to edit the received file if extraneous data happens to get included in the file.

I have written a set of file transfer programs for transferring files automatically, which run in the IBM PC. These programs, names SF and RF, implement a simple file transfer protocol that could be incorporated in any microcomputer used on packet radio. The protocol includes the following features:

1. The name and size of the file is sent to the receiver, so he knows what file is coming and how much space is required.
2. The sender or receiver can interrupt the transfer at any time, by manual intervention at the keyboard.
3. No extraneous data can get accidentally included in the file.

The process works in three stages: synchronization, intent, and file transfer. The synchronization step is necessary because packet radio as currently implemented with the TNC is byte-oriented from the point of view of the host (or terminal), and it is necessary to send distinct blocks during the file transfer. The intent step sends the file name and size to the receiver, who then accepts or rejects the transfer. Then, in the last step, the data is transferred.

The data that pass between SF and RF is always in the form of blocks. The block is defined as one byte of flags and one byte length, followed by a variable number of data bytes. The flag and length are known as the header. The header length always specifies the number of data bytes in the block. The flags specify the purpose of the block. The following flag bytes have been defined:

- '0': Synchronization request from SF.
- '1': Synchronization response from RF.
- '2': Intent message from SF.
- '3': Positive response from RF.
- '4': Reception complete from RF.
- '5': ABORT request from either SF or RF.
- '6': Block of data from SF.
- '7': LAST block of data from SF.

Synchronization procedure

It is uncertain whether SF or RF will begin execution first. Therefore, the convention was chosen that SF

sends the first message, and RF waits for it and sends the response. When SF begins execution, it sends a 4 byte block, consisting of flag '0', length 2 (binary), and the data "SF". If no response is received, the message is resent at 15 second intervals until the correct response is received, or the sender gives up and interrupts the program. (I have chosen the use of the "Esc" key for interrupting the program).

When RF begins execution, it waits for the synchronization message from SF. Other data may be received, but is ignored (but may be displayed on the screen). When the above 4 bytes is received, RF sends a 4 byte block consisting of the flag '1', length 2 (binary), and the data "RF". RF then assumes it is synchronized with SF and goes to the intent message stage.

SF should eventually receive the synchronization acknowledgment from RF. Other data received in the meantime is ignored (but may be displayed on the screen). Once the message is received, SF assumes it is synchronized with RF and goes to the intent message stage.

It is useful during the synchronization step to display received data on the screen. For instance, if one station starts SF or RF, and the other station sends the message "wait, the phone just rang", the first station can see why the file transfer did not start as expected. However when synchronization is achieved, both programs should stop displaying received data on the screen.

Intent Message procedure:

SF builds an intent message, consisting of the flag '2', the length of the data, and data consisting of the filename, one or more blanks, and the file size in ASCII digits. The filename may be obtained from the sender from a command line parameter or by prompting. The file size should be obtained from the computer, and expressed in bytes. The message is then sent to RF, and SF waits for a response.

The file size is not available in some computers. If this is the case, a size of zero should be sent as the file size; this will be understood as meaning "size not available".

In the meantime, RF is waiting for the intent message. When it is received, RF must take the appropriate steps to open a file to receive the data. If a non-zero file size has been received, RF can determine if it has enough space to receive the file, and perform any desired action to ensure the file transfer will be successful. For example, RF can see if a duplicate file name exists and ask the operator if it should be overwritten. Then, RF must send either a positive response (flag '3', length 2, data "RF") back to SF. If an abort is sent, RF is finished and the program may end. Otherwise it goes to the data transfer stage.

SF waits for the intent message acknowledgment from RF. When it is received, SF either terminates, if an abort is received, or begins sending the data.

Data Transfer procedure:

SF builds data blocks and sends them to RF. Each block consists of the flag '6' (or '7' for the last block), the data length, and 0 or more bytes of data. SF and RF use the limit of 62 bytes of data for each block, but this value is arbitrary. No response is expected from RF unless the receiver wants to interrupt the transfer with an abort request. Therefore, SF should be watching for incoming abort requests.

RF receives each block and stores the data in the file. When a flag of '7' is received, the transfer is complete and the file should be closed and the program ended. '7' may or may not contain data, but it must exist to end the transfer. If something goes wrong, the receiver can send an abort block to stop SF. In addition, RF should look for an abort block on input, and if received, finish up its processing.

SF and RF should not display the transferred data on the screen, since, in the case of binary files, it is meaningless on the display. In addition, various control characters may occur in binary files and may cause unexpected effects on the screen. It is better to keep a count of the bytes sent/received and write periodic status messages on the screen (i.e. "2433 bytes sent, 1255 bytes remain") so that the user is kept informed of the progress of the transfer.

End of Transfer procedure:

Since SF effectively finishes sending the data well before RF has received it all, a method is desirable to keep RF from ending until all the data has been received by RF. After all the data has been sent, SF waits for a "reception complete" message from RF, then terminates. RF simply needs to send the "reception complete" message to SF when the last block has been received.

General:

It may also be useful for SF and RF to monitor the status of the session, i.e. if the TNC is connected or not. If this is possible in your host, then you can terminate SF or RF if the station you are connected to inadvertently disconnects in the middle of a transfer. Also keeping a timeout count during waits for sends and receives is very useful, in case something goes wrong with the communications link. After, say, 5 minutes of no activity, the program can send an abort and terminate.

The following is a summary of the block formats:

USE	FLAG	LENGTH	DATA
=====	=====	=====	=====
Synch. request	'0'	2	"SF"
Synch. response	'1'	2	"RF"
Intent request	'2'	data	filename blank filesize(ascii)
Intent response	'3'	2	"RF"
Reception complete	'4'	2	"RF"
Abort	'5'	2	"SF" or "RF"
Data	'6'	data	data from SF.
Last data	'7'	data	data from SF.

- PRM -

What Is A Packet?

(An introduction to Packet Radio concepts extracted from the Compuserve XA9 HamNet Database)

A packet is the basic message unit in packet radio. It consists of a text message sandwiched between the header and trailer information required by the protocol. In a typical QSO, a packet would be encoded and sent out by the TNC when the operator ends a line of typing by hitting the RETURN or ENTER key.

A packet need not consist of only ASCII or Baudot character strings, however. It could contain information in other coding systems, such as BCD or EBCDIC, or even binary data such as a compiled computer program. The TNC, which uses a "bit oriented protocol" (HDLC), can encode any of these equally easily. An advantage to this choice of protocol is that the functions it requires are available on a single large-scale integration (LSI) chip, which simplifies the TNC hardware and software.

The "frame" of an HDLC packet is represented below. Each field of the packet is encoded as a sequence of 1's and 0's (bits) to be transmitted as "mark" and "space" tones. With the exception of the DATA field, all these fields are generated by the TNC as it assembles the packet for transmission. The operator is concerned only with the contents of the DATA field.

| Flag | Address | Control | Data | FCS | Flag |

The FLAG is a unique bit sequence which identifies the beginning of a packet to the HDLC controller. This pattern corresponds to no sequence which would be encountered in any of the other fields, except possibly in the transmission of binary data. Even in this case, there are provisions for distinguishing data from the flag sequence.

The ADDRESS field contains routing information for the packet. This information may include the destination station, the originating station, and possibly intermediate routing information if the packet will be relayed. These stations are identified by amateur call sign in the AX.25 form of the protocol being used by hams.

The CONTROL field describes the purpose of the packet. It identifies packets with such functions as connection establishment or disestablishment, packet acknowledgement, or a packet carrying DATA. It may also contain a sequence number for a multi-packet message which must be processed in the correct order.

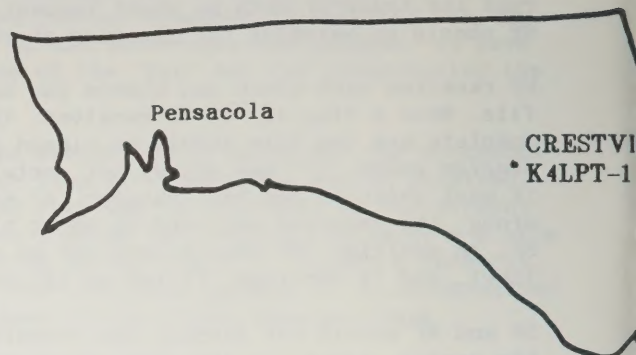
The DATA field contains the message being sent, which will ordinarily be the text typed in by the user, converted into an ASCII data string. In the case of a packet identified in the control field as performing a control function, the DATA field may be absent.

The FCS allows the receiving station to verify that the packet has been received correctly. If the FCS calculated by the receiving TNC matches the FCS of the packet, an acknowledgement is sent; otherwise the packet is ignored.

- PRM -

DIGIPEATERS REGISTERED WITH THE FADCA PACKET FREQUENCY COORDINATING COMMITTEE

Location	Input	Output	Call	Notes	Sponsor	Source
Boca Raton	145.01	145.01	BCR	Packet	IBM ARC	FADCA
Clearwater	145.01	145.01	CLW	Packet	KC2FF	FADCA
Ft. Lauderdale	145.01	145.01	FTL	Packet	N4LDR	FADCA
Gainesville	145.01	145.01	GNV	Packet	Univ of Fla ARC	FADCA
Hollywood	145.01	145.01	HWD	Packet	WA4WHD	FADCA
Homestead	145.01	145.01	HST	Packet	KB4MWU	FADCA
Jacksonville	145.01	145.01	JAX	Packet	WD4BIW	FADCA
Lake City	145.01	145.01	LKC	Packet	KF4TT	FADCA
Melbourne	145.01	145.01	MLB	Packet	N2WX	FADCA
Miami	145.01	145.01	MIA	Packet	Dade Radio Club	FADCA
Miami	145.09	145.09	KA4HLO-1	Packet	KA4HLO	FADCA
Naples	145.01	145.01	WA1JOU-2	Packet	WA1JOU	FADCA
Ocala	145.01	145.01	OCF	Packet	K4OZS	FADCA
Orlando	145.01	145.01	ORL	Packet	K4AHO	FADCA
Orlando	145.05	145.05	ORL-1	Packet	WD4HIM	FADCA
Port Charlotte	145.01	145.01	PTC	Packet	KB4CIA	FADCA
Sarasota	145.01	145.01	SRQ	Packet	WA3LKW	FADCA
Stuart	145.01	145.01	STU	Packet	K4NTA	FADCA
Tallahassee	145.01	145.01	TLH	Packet	WB4QOX	FADCA
Tampa	145.01	145.01	TPA	Packet	W1BEL	FADCA
West Palm Beach	145.01	145.01	WPB	Packet	ARES RC	FADCA



Please provide map updates and corrections to
KE8CW, %FADCA, 812 Childers Loop, Brandon, FL
Brad directly at (813) 681-6868. Messages to

To apply for a digipeater frequency allocation and become a registered digipeater/network node contact the FADCA Packet Frequency Coordinating Committee (PFCC) at 812 Childers Loop, Brandon, FL 33511.

CONNECTIVITY MATRIX

B	C	F	G	H	H	J	M	M	N	O	O	P	S
C	L	T	N	S	W	A	I	L	A	C	R	T	R
R	W	L	V	T	D	X	A	B	P	F	L	C	Q

BCR	.	.	E	.	.	.	.	.	.	.	.	.	.
CLW	.	.	.	F	.	.	.	F	.	F	.	G	E
FTL	E	.	.	.	.	.	.	.	.	.	.	.	.
GNV	.	.	.	.	.	F	.	.	.	E	.	.	.
HST	.	.	.	.	.	.	E	.	.	.	.	.	.
HWD	.	.	.	.	.	.	E	.	.	.	.	.	.
JAX	.	.	E	.	.	.	.	.	.	E	.	.	.
MIA	.	.	.	E	E	.	.	.	.	.	.	.	.
MLB	.	F	.	.	.	.	.	.	.	.	E	.	.
NAP	.	.	.	.	.	.	.	.	.	.	.	.	.
OCF	.	F	.	E	.	E	.	E	.	G	.	.	.
ORL	.	.	.	.	.	.	.	E	.	E	.	.	.
PTC	.	G	.	.	.	.	.	G	.	.	.	E	.
SRQ	.	E	.	.	.	.	.	G	.	.	.	.	.
STU	.	.	.	.	.	.	.	E	.	.	.	.	.
TLH	.	.	.	.	.	.	.	.	.	.	.	.	.
TPA	.	E	.	.	.	.	.	E	.	F	G	.	E
VLD	.	.	.	.	.	.	.	.	.	.	.	.	.
WPB	E	.	E	.	.	G	.	E	.	.	.	.	.

CONNECTIVITY INDICATORS

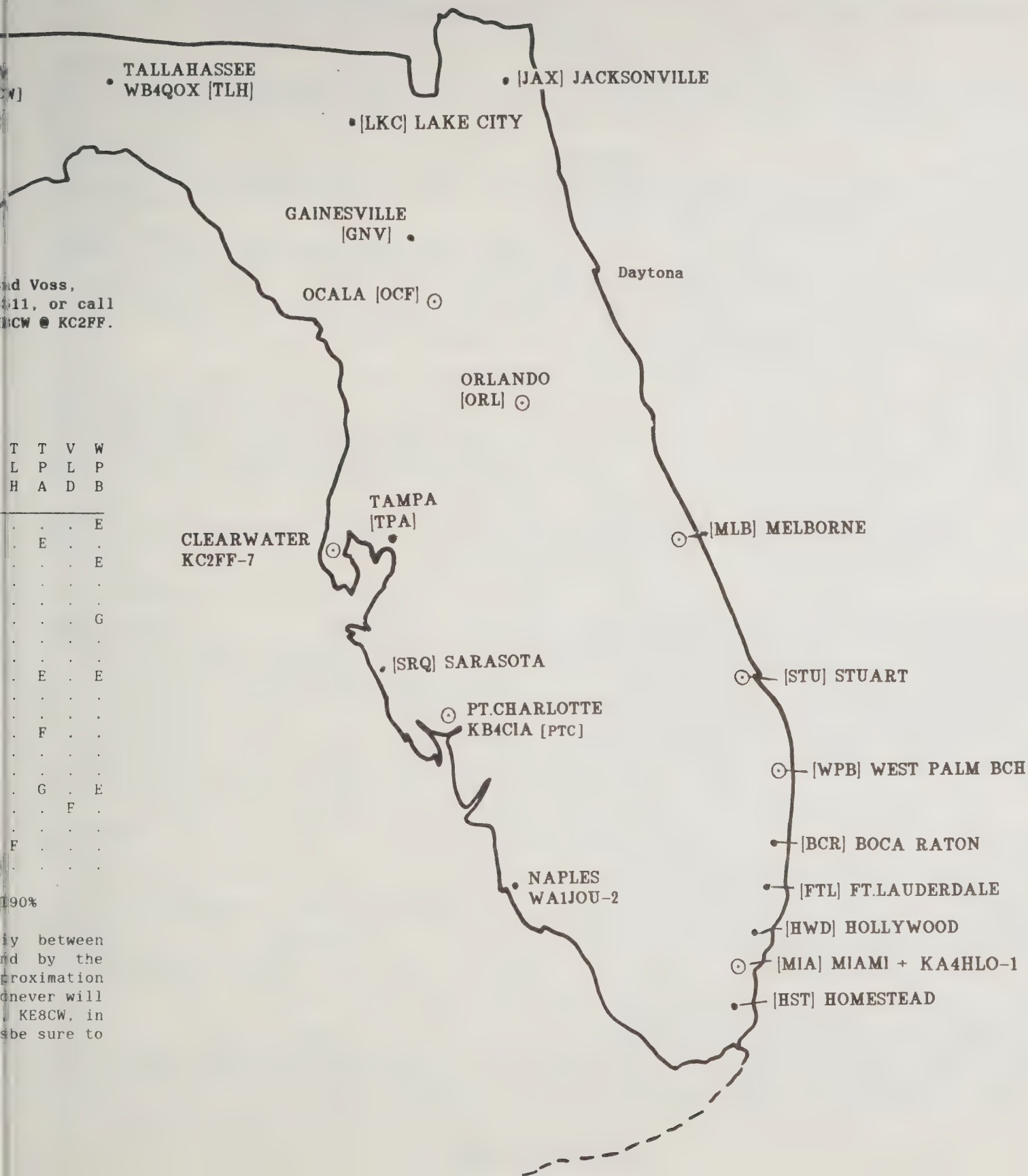
F = FAIR 50% G = GOOD 70% E = EXCELLENT

The matrix above lists the reported connectivity of Florida Digipeaters. The values were determined by the S.W.A.G. method, and are only to be used as a guide of connectivity. The matrix is not complete, and should be updated unless users report back to the author, Brandon. When reporting new connectivity ratings, please report average, not enhanced conditions.

FADCA VOICE NETS
REGIONAL (FLORIDA AND ADJOINING STATES):
3958 KHz Sunday 8 AM EST. NCS: K4NTA. We are looking for a NCS in far north Florida or Georgia to conduct a session one hour later at 8 AM CST.
SOUTHNET COORDINATION NET: 7190 KHz each Sunday at 2 PM. NCS: W4FX.
BREVARD COUNTY AREA: 146.940 (-600) Sunday 8 PM (Space Shuttle audio has priority)
BROWARD COUNTY AREA: 147.00 (-600) Sunday 8 PM. NCS: K4GFG, N4KWB
CRESTVIEW (Panhandle): 147.360 (+600) Sunday 8:30 PM (after traffic net). NCS: K3NN
GAINESVILLE: 146.91 (-600) Monday 8PM.
MARION COUNTY AREA: 146.61 (-600) Thursday 0045Z. NCS:K4OZS
MIAMI: 147.000
SOUTHWEST FLA: 146.73 (-600) (Sarasota rpt) Wednesday following SERA net at 7:30 PM.
STUART:147.060 (-600) Sunday 8 PM.
TAMPA BAY AREA: 147.165 (+600) Sunday 7:30 PM EST. NCS: KB4LLO.
WEST PALM BEACH CO: 147.285 (+600) Monday 8 PM.

FLORIDA STATE PACKET DIGIPEATERS

⊙ SUPPORTS WORLI BBS



and Voss,
11, or call
KC2FF.

T	T	V	W
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H	A	D	B

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190%

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FADCA > BEACON

THE FLORIDA AMATEUR DIGITAL COMMUNICATIONS ASSOCIATION NEWSLETTER

Sebring II Network Coordinating Committee

Tom Kneisel, K4GFG

In January, 22 packeteers from Jacksonville to Miami met to discuss networking issues, especially the auxiliary linking project. Thirteen of the state's 21 digipeaters were represented.

The following sites reported being in advanced stages of auxiliary linking preparation: PTC, CLW, OCF, STU, WPB, HWD. Others who are in earlier stages of preparation included GNV, TPA, BCR, HST. Six of the LANs said that their auxiliary linking hardware would be complete by the time of the Orlando hamfest or sooner. Several sites not represented were also thought to be working on auxiliary linking.

K4NTA brought a Xerox 820 package modified as a digipeater with FAD Board and modem. He described the modifications and held a question and answer session on hardware. He said that he will provide a set of two 27128 EPROMS with NNC firmware to each of the Florida LANs.

WD4IXI gave a report on the work he had done to modify the KE3Z dual port digipeater code to work with the Zilog 8530 chip. He indicated the work was nearly finished, and that the testing phase about to begin. He said that the software should be ready for distribution about mid-February.

Next K4NTA reported that N2WX had written some Level III switch code which runs on nearly the same hardware as the KE3Z code. It would support networking between switch sites, and was to be released in two weeks. It has been described by N2WX in recent FADCA>BEACONS. The code does not support auxiliary linking at this time, but Ted thought that it would be ready in two months. After discussion, the group chose to go with the N2WX code (and take out a life insurance policy on its author who won't release the source code).

Once LANs are auxiliary linked, they will be assigned individual LAN frequencies. It is likely that one NNC may hear the transmissions of another NNC on the same frequency, as the frequencies are re-used at certain geographic separations. WB4KGY mentioned the concept of using sub-audible tones (CTCSS) at the NNCs (an idea earlier proposed by K4NTA). The NNCs would all transmit the same CTCSS tone. Their receivers would decode this CTCSS tone, and use it to negate the Carrier Detect function so that their transmissions would not be held off by other NNCs on the channel. The geographical separation between LANs and the FM capture effect would insure that local users will hear their own NNC when it "steps on" the more distant NNC. There was some concern

Continued on page 15.

FADCA Packet Frequency Coordinating Committee

Tom Kneisel, K4GFG

FADCA's PFCC met on Feb. 8 at the Miami Hamfest. In attendance were K4NTA, WB4KGY, and K4GFG. Also present was WA4QQR from the Florida Repeater Council.

It was noted that the FADCA Board of Directors still had not approved the PFCC and given it a specific charter, and that the proposed digipeater registration forms had not been received by the PFCC members.

The PFCC decided to provide information on statewide digipeaters to the ARRL for inclusion in their Repeater Directory. There will be 21 listings from Florida in the next edition, to be released at the Dayton Hamfest. All but one of the repeaters listed uses a mnemonic callsign!

WA4QQR said that the FRC had received some interference complaints from 220 Mhz simplex operators in the St. Pete area, and conversely, that the FRC would be glad to help the PFCC resolve any QRM problems we experience. He said that we should consider our packet frequency needs for all VHF and UHF bands, and present them to the FRC. The issue of additional frequencies in the two meter band was then discussed. The previously suggested frequency range 144.9 to 145.0 was noted by WA4QQR, who promised to discuss it with the FRC.

K4GFG presented a two meter frequency plan for digipeaters. He indicated that a strict cellular type geometry had not worked out efficiently as hoped. Instead he placed sites generally near significant population centers, assigning four frequencies on a re-use basis of 85 miles co-channel separation. Details and further comments are shown below. The issue of whether 85 mile co-channel separation is sufficient to prevent QRM to a digipeater from users in the co-channel LAN was discussed. WA4QQR indicated that it may not be, and that he uses 100 miles for co-channel spacing on 220 Mhz, with special consideration given to repeaters with low antenna height and power.

PROPOSED TWO METER LAN ASSIGNMENTS

Frequency 1

Panama City, Tallahassee, Lake City, Daytona Beach, Brooksville, Stuart, Port Charlotte, Miami, Marathon, Milton

Frequency 2

Crestview, Apalachicola, Madison, Gulf Hammock, Cedar Key, St. Augustine, Orlando, Vero Beach, Sarasota, Naples, Hollywood, Islamorada

Continued on page 11.

1985 FADCA > BEACON INDEX

Prepared by Brad Voss, KE8CW

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Frequency 3

Perry, Blountstown, Ft. Walton Beach, Jacksonville,
Ocala, Tampa, Melbourne, Ft. Myers, Boca Raton, Key
Largo

Frequency 4

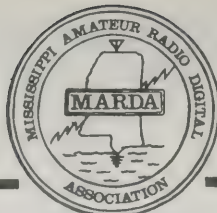
Pensacola, Mariana, Monticello, Gainesville,
Fernandina Beach, Titusville, Clearwater, Sebring,
West Palm Beach, Homestead, Key West

All digipeaters may continue to use Frequency 5 (145.01) until they are ready to move. This frequency will also be used as a "holding tank" for those sites which have not been assigned a unique LAN frequency under the plan, while they await additional frequencies to be allocated to FADCA for packet operation. It was noted that several existing sites must be placed on Frequency 5 under the proposed plan, notably Lake Wales, Ft. Lauderdale, and any city with more than one digipeater (Miami, Jacksonville, Orlando). The PFCC continues to encourage LANs to consider bands other than two meters for their primary operation.

The locations above generally represent centers of existing or expected packet operation. There will likely be some re-assignments to accommodate alternative locations nearby to the listed cities. These nearby locations must of course meet the requirement for 85 mile co-channel separation.

The PFCC solicits comments on this proposal, especially the 85 mile rule. Send your comments to the PFCC at the FADCA address in Brandon, Florida. The proposal will be discussed in more detail at the next meeting of the PFCC on Saturday, March 8 at 1 pm in the Southnet Room at the Orlando Hamfest. The meeting is open to all who wish to attend.

- PRM -



Patrick J. Fagan, WA5DVV
2412 E. Birch Dr., Gulfport, MS 39503
(Compuserve ID: 74246,1310)

By this time all of you have received your first copy of PRM. I am delighted to say that reaction from MARDA members and others was very positive. Gwyn is to be congratulated on another outstanding piece of editorial craftsmanship. Keep up the good work Mr. Reedy.

The SKYHOOK is back up in the air where it belongs at WA5DVV. Hurricane Elena managed to turn the antenna farm into an aluminum scrap pile. It's good to hear more than the local digipeater for a change.

If all goes well, the HF GateWay at WA5DVV should be turned on as soon as the TNC is modified for 300 baud use. This will provide an I/O for message forwarding across Mississippi, Louisiana, Alabama and northwest Florida.

The recent FCC decision on Automatic Control, known as PR Docket 85 105, didn't exactly meet with overwhelming joy from the amateur radio community. Automatic control privileges continue for repeater, auxiliary and beacon operation. That's the good news. A major goal in the securing of automatic control privileges for digital operation at 50 Mhz and above had been the facilitation of packet radio data transfer, computer to computer communication and packet switching systems. This operation requires that a control operator be present whenever third party traffic is handled. FCC has given us absolutely no slack in this area via the Report and Order in PR Docket 85 105. It seems FCC found that neither the speed with which a message is transmitted, nor the operating mode, justified any deviation from the rule requiring that the control operator of an amateur station be present at the control point whenever a station engages in third party traffic. Under these conditions, the expanded automatic control privileges gained through 85 105 are not something you will want to write home about. Digipeater and MailBox/MSO type operations will be severely hampered. This apparent setback for Packet Radio will trigger a response from numerous individuals and organizations for sure. Watch PRM for an update on this story.

If you are active on Packet in Mississippi or plan to be so in the future, let us hear about it. This column is written for you and your thoughts are always welcome. Keep the ideas flowing so that all readers will benefit. Drop a note to me at the home QTH, via E-MAIL on Compuserve or leave a message on the WA5DVV PBBS.

HATTIESBURG LAN

Hank, K5QNE, President of the Hattiesburg Amateur Radio Club tells me that talk is underway for a Digi

in that city. The Hattiesburg/Laurel area would be the ideal place to expand the network into Jackson. There is a ridge near Wiggins that prevents any long haul communications between the Coast and the Capitol. A digi located in this LAN would fix that problem very nicely. Keep the talks going Hank as we are awaiting any new developments.

JACKSON LAN

Alan, WD5IKD, in Pearl is very happy with his new PBBS. The system has been up and running now for a few weeks on a CoCo. Not a large users list yet but activity is slowly increasing. This brings the PBBS count to a total of two in Mississippi. Contact Alan for more information about the CoCo PBBS. Congratulations to Bob, WA5PCD, another new station on packet in Jackson. More and more stations coming up on this mode from the central part of the Magnolia State.

COLUMBUS LAN

Some minor problems have been cropping up lately according to Jorge, KC5RY. It seems that KC5RY-1 has been ailing causing coverage in and out of the area to suffer. Repairs are being made to the Digi and normal operation should be resumed by the time you read this. Packet operation from Columbus Air Force Base is on the increase so look for more new activity soon.

VICKSBURG LAN

Another new station has joined the ranks as an "ACTIVE PACKETEER" in Vicksburg. WB5OWY is now on the air looking for connects. Give Ralph a call when you hear him on. Currently, the Vicksburg stations are helping Alan break in his new PBBS near Jackson. WB5SXX and W4MKS continue to keep the Digital Dialogue flying from this LAN.

GULF COAST LAN

Band openings and new stations from Louisiana to Florida resulted in a flurry of new activity recently here on the coast. Birmingham, Huntsville and Houston were logged recently. But the most interesting call monitored lately was that of N5DNG-2. Jim operates packet from an oil drilling rig somewhere off the coast of Louisiana. Although I have not been successful in connecting with him, I understand he has a G7 at 250 feet. Now how's that for portable packet operation?

A new program for the PC called PROCOMM is being tested by Butch, WA5MPH. This software allows successful transfer of binary files over packet. Butch will give us a full report after a track record has been established.

Welcome to Mike, W5QDN, recently on packet from Biloxi. He tells us that Packet Radio techniques will be used in a big way by the Civil Air Patrol.

Congratulations to the Mobile Amateur Radio Club on the installation of MOB (W4IAX/R) Digi in Mobile, which provides a link from Louisiana to Florida via GPT in Gulfport.

Glynn, WB4RHO has connected to tell us that he will be running a WORLI GateWay (VHF/UHF) from Headland (near Dothan, AL) very soon.

Until next month, may all your CONNECTS be many and RETRIES few.

- PRM -

Get ★★★CONNECTED to Packet Radio

by Jim Crabbs, K9EL



The Packet Radio Handbook

Over 150 pages of information exclusively on packet radio



17 Chapters including:

- ★ Choosing a TNC ★ Packet protocol for the beginner ★ Packet Accessories
- ★ How to make your first packet contact ★ Packet Bulletin Board Operations

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Also available *The Commodore Ham's Companion* \$15.95
(see January '86 QST page 47 or February '86 CQ page 68)
and *Command Post* \$9.95.



P.O. Box 3042
Springfield, IL
62708

NEW

PAK-COMM

*** NEW***

The PAK-COMM program is written for packet radio terminal controllers. The program enables the operator to enjoy the uses that packet radio offers by taking care of the housekeeping, and provides the little 'extras' that make daily operations easy. Use PAK-COMM for both modem and packet work.

Com Parameters: 300-9600 bps, set port, parity, data bits. A start-up file with pre-defined communication parameters, file transfer protocols, date/time stamp options, operator identification line and space for command macros. Set up many files, pick at run time.

Scrolling Pages: Five pages of receive screen with full cursor control.

Split Screens: Separate transmit and receive screens with full line buffering for the transmit. This will enable you to monitor all channel activity while composing messages. Set split where you wish.

File Transfers: You may use transparent or x-modem protocol. Constant character count is provided to monitor activity.

Command Macros: The Alt function keys are available to send strings of up to 250 characters or timing loops that are sent to the controller in one keystroke. Setup complex rpt chains or BBS logons.

Help Screens: Two individual help screens are available, one is a text file to be modified by the user. A good place for system maps.

And Lots More: Like 5 different date/time formats, operator identification line, log files, 50 page manual and even MORE !

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RMPRA > PACKET

A NEWSLETTER OF THE ROCKY MOUNTAIN PACKET RADIO ASSOCIATION

Rocky Mountain Packet Radio Association
A Non-Profit Amateur Radio Organization
Dedicated to Implementing a Packet Radio Network
in the Rocky Mountain Region

RMPRA Subscribes to PACKET RADIO MAGAZINE

PRM plans call for a column from each subscribing area (including RMPRA). The material RMPRA will furnish for the PRM column will be of a nature that will have a message or useful information for the "outside" packet world. If you have something to submit contact the RMPRA Editorial Office: 1626 27th St., Greeley, CO 80631. (303) 352-9159. BBS Mail: WOHJX @ KOVLD.

If you would like to join RMPRA, Please send \$20 and your name and address to ANDY FREEBORN, NOCCZ, Secretary RMPRA, 5222 Borrego Drive, Colorado Springs, CO 80910.

Packet radio activity in the Rocky Mountain area began in 1982, and the RMPRA was formed in May 1984. The nucleus of the organization was former TAPR TNC beta testers and early VADCG users.

The objectives of RMPRA are to promote packet radio use within the amateur community and to pursue the installation of a packet linking network in the Rocky Mountain region.

While the bulk of RMPRA membership is from the state of Colorado, there are also members in Texas, Arizona, New Mexico, Utah and Wyoming.

The focus of RMPRA during 1986 is to extend linking to the East to join the Nebraska packeteers. This connection will provide access to the Des Moines area, and this in turn, to Chicago and an ultimate connection with the Eastern seaboard. At the same time, we will be installing repeater sites to the West. The first objective is to connect with the Salt Lake area. Concurrently, we expect that the Salt Lake packeteers will be extending the coverage on to the West coast.

The FADCA > BEACON Continued....

BYTES FROM THE WRITE ONLY MEMORY
Ted Huf, K4NTA

Here is some news from the K4NTA MailBox that might be of interest: Larry K4OZS reported that the Ocala Digipeater K4GSO-7 now responds only OCF. Gainesville has also been changed to GNV.

Below is the text of a message that Tom K4GFG left on the KB4CIA MailBox in Port Charlotte which was relayed to mine:

"I just had a successful chat with Bill, K4RHD, via the 144-220 gateway on this BBS. I am getting into KB4CIA direct on 144, and he direct on 220. We had a fine qso via a single hop from Ft. Lauderdale to Tampa area! I will be looking for other QSOs on the 145.05 via KB4CIA from 9-10:30 each nite. 73's...Tom K4GFG"

The Following message was received from Bob, WA2HFA.
From : Bob Jankuv WA2HFA

To : All users of BCR
Subject : BCR Hot Line

If you find that BCR is down, please call (305)982-0970 and leave a message abt the problem. This is my office number at IBM in Boca Raton. I will then correct the problem in a timely manner. As my office is only a few hundred yards from where BCR resides. Thank you all for your patience! 73's Bob Jankuv WA2HFA

Frank KB7TV is has a copy of the WORLI MailBox written for the IBM PC. He has been testing it from his home at Lake Worth but it will soon be in operation at the IBM Club Station at the Boca Raton computer factory.

I would like to welcome Phil KA4NOF-1 in West Palm Beach to the ranks of WORLI system operators. Phil got his 820 up and running in January. It is doing a good job and serving the WPB Lan well.

KB4CIA is now up and running on 145.05/145.01 from Port Charlotte. K4AHO has his other port on 145.05 also for the Orlando LAN. K4TKU in Miami now has a HF Gateway on 14.103 which is doing very well. My Mail-Box is operating on 145.01/14.107.

Every LAN should work to get a WORLI or WORLI "work alike" PBBS on the air. Joe WD4KAV in Stuart has been working with new PBBS or MSO he calls the DATA BANK. While not a message system, it has lots of C-64 programs and other interesting files.

Every day we see new calls pass across the screen here in my shack. We who are members of FADCA should encourage new packeteers to join and support FADCA. Packet radio depends on organization to coordinate, design and build the networks that will allow us to communicate. Get out there and encourage the new fellow to join FADCA to keep up with the latest news through Packet Radio Magazine. Don't forget to renew your membership.

It is hoped that by the time you read this the K4NTA-1 or STU digipeater will be a GATOR-2 Network pad and Network Node. It was reported last month about 305MLB. Howie N2WX is working on the routing software as this is typed. After a shorat testing period between 305 STU and 305MLB we will be ready to get more switches on the air.

- PRM

Sebring 2 - continued from page 10.

expressed that users in fringe areas where NNCs are widely spaced may have less signal margin on their local LAN, so the following policy was suggested: All NNCs should transmit the CTCSS tone, but the decision to use it to inhibit the Carrier Detect function is a local decision. Some members of the group said that they would experiment with this concept and look into what tone frequency would be suitable. Note that users would not be required to send or decode CTCSS tones under this scheme.

The next meeting of the Network Coordinating Committee will be at 3 pm on Saturday March 8 in the Southnet Room at the Orlando Hamfest. Topics of discussion will include:

1. Status of auxiliary linking at NNC sites.
2. How and where to fit BBSs into the network (should they be on the backbone?)
3. Division of the Network Coordinating Committee into North and South regions so that you don't have to drive so far to meetings!

Do you have a topic you would like to present, or comments on CTCSS or other proposals? These meetings represent a forum for proposals and ideas. Give your opinions to your LANs representative. Your LAN doesn't send a representative? Why not designate one for the Orlando meeting? Packet radio requires cooperation between LANs, and out of these meetings we hope to agree on common goals that the LANs can work towards.

- PRM -

GRAPES From The Grapevine

M 5748 Eric Ellison (N4CI,2969) 1/26/86 3:34 AM

L:10

KEYS:/PACKET RADIO MAG SUBS./GRAPES/

GWYN

I AM PLEASED TO SAY THAT THE GRAPES UNANIMOUSLY VOTED TO JOIN THE PACKET MAGAZINE REVOLUTION.

SIG ERIC N4CI.....

SOUTHNET DIRECTORY LISTING FORM

CALLSIGN: _____ Are you on Packet? ☐ Y ☐ N

DATE: _____ NAME: _____

ADDRESS: _____

CITY: _____ ST: _____ ZIP: _____

PHONE: (____) _____-____ ARRL GRID COORDS: _____

% OF TIME ON PACKET: _____ LAN FREQS: _____

IS YOUR STATION A DIGIPEATER? ☐ Y ☐ N SSID: _____

OTHER SSIDs YOU MAINTAIN AND PURPOSE: _____

Mail to: GRAPES, P.O. Box 1354, Conyers, GA 30207
ATTN: Joe Mehaffey, K4IHP.

Kantronics KPC-2

NEW!

NOW — AX.25 VERSION 2 for ANY computer, the Packet Communicator II

Can you imagine a TNC that has a built-in HF modem and tuning aid, AX.25 version 2 protocol, multiple connects, and both TTL/RS-232 levels at the computer port? Well, it's here! Introducing the **Kantronics Packet Communicator II**, KPC-2 for short.

KPC-2 is the only TNC you will need, even if you change computers. KPC-2 interfaces with ANY computer that has a serial RS-232 or TTL (C-64/VIC-20) port. The generic command structure, similar to KPC-1 but enhanced, fits any computer, even the PC compatibles.

In addition, KPC-2 features totally new hardware and software — KPC-2 is



Suggested Retail \$219.00

not a clone. And, of course, KPC-2 is enclosed in the now industry standard Kantronics extruded aluminum case. For more information contact Kantronics or a Kantronics dealer.

Want more information on Packet?
Contact us about our new **PACKET VIDEO**, great for a club program or instruction. \$22.50, VHS or BETA format.

Kantronics

1202 E. 23rd Street (913) 842-7745
Lawrence, Kansas 66046

UPRA Connect

Newsletter of the UTAH PACKET RADIO ASSOCIATION

SECOND FREQUENCY USED.

Congestion has rapidly become a problem in the Salt Lake City area in the last few months on 145.01 MHz. In order to reduce this problem somewhat, Doug WB7SOW has moved his central valley situated station to 145.09 MHz.

It is advised that 145.01 be used for long haul traffic out of the Salt Lake Valley, and 145.09 for the longer in-town activity. One of the Bulletin Boards will probably be moved to 145.09 in the near future.

As a further means of relieving frequency congestion, try working direct where possible, on 145.03, 145.05 and 145.07 MHz.

LSC-10 UNVEILED

The long awaited "Universal Packet Accessory" was unveiled at the annual TAPR meeting during February. This truly unique product lived up to all its advertisements, and is a genuine bargain at only \$5.00.

This Liquid Stimulus Container (10 oz.) is well built, and is a wonderful conversation piece. These Coffee Mugs (in TAPR colors, of course) are available while supplies last, from the TAPR office.

Unfortunately, this product suffers from a problem common to LSCs of almost every description. Watch the Packet press for a technical article in the near future on a device which overcomes this problem, the TSD-120.

OGDEN ARC MEETING.

Basic Packet Radio will be the topic at the next OARC meeting, which will take place on March 19, 1986. More information can be obtained on the UPRA Voice Net.

Dave, N7BHC, will be the speaker, and demonstrations of Packet communication are planned. Please try to attend in order to help demonstrate Packet and answer questions at the end of the meeting.

CALIFORNIA LINK ON THE HORIZON

Assuming everything goes according to plan, a link to Southern California may be in operation within a few months. A digipeater site in Central Utah has been found that can be worked from Utah Valley and Iron Mountain, which is near Cedar City. The Iron Mountain site is being used regularly by stations in Cedar City to link into the West Coast Network by way of Las Vegas.

THE TAPR MEETING-WHAT THE SLC GROUP DID

I am sure that several other people will report on the TAPR meeting in general. What follows is my impression of the highs and lows of the entire show.

First the low points. The main low was the high temperatures for the days I was there. Never again will I believe the "Sunny, Warm Arizona" brochures. It SNOWED in Tucson the night before I arrived. Friday evening was COLD. Saturday it RAINED most of the day and evening. Tucson is supposed to be a desert, with almost no precipitation.

As if receiving most of the decade's moisture in my prescence wasn't enough, on Saturday night was the best Aurora conditions for the last several years. Those of you who knew me before Packet will remember that my main interest in ham radio is VHF DX. Naturally, it was all over by the time I returned to Salt Lake on Sunday evening.

So much for the negative aspect of the weekend. Now on to the brighter side of things. As usual, the best thing of all about the TAPR meeting was the camaraderie. The pizza party on Friday evening got everybody in the mood for some excitement, so off to the Malibu Grand Prix for some fast driving. The fastest person on the track that evening in the mini Formula cars was Chris, N7GNT, from Salt Lake. Chris received the only LSC-10 (see above) to be given away as a prize.

Saturday was set aside for the convention proper, with many interesting talks given. Several new and potential products were shown, one of which is an HF tuning indicator (the production kit may include an HF modem). The evening was set aside for an informal dinner.

Sunday was essentially the Board of Directors meeting, which was a closed gathering. Packeteers at large are left to fend for themselves. Most people headed home early, but as the Salt Lake flight was only leaving at 3 p.m., we decided to head up to the Kitt Peak astronomical observatory. Having travelled so far, we were not deterred by a simple "Road Closed" sign. After following the snow-plow to the peak, we couldn't see much as we were in the clouds. The people who man the site were kind enough to show their old movie to us (the mountain was officially closed), after which the three of us braved the sub-freezing conditions for a trek up to the largest telescope on the mountain. It was certainly worth the trip.

Great fun was had by all, and I for one am looking forward to next year's bash.

Dave Pedersen, N7BHC

UPRA DATA

MEETINGS: Held at the Heathkit Store, at 7200 South State (58E.), on the second Thursday evening of the month at 7.30 p.m. At the next meeting on March 13, the prime speaker will be Ted, KC7PM, with a dissertation on the AX.25 Layer 2 protocol. Ted's experience with the protocol was gained while trying to implement the software approach to Packet Radio. VOICE NET: The information dissemination and question/answer net is held on Tuesday evenings at 8.45 p.m., on the 146.02/62 repeater. Net control is Steve, KI7L.

PBBS: There are several PBBS stations now in operation. WA7UZO and KA7EGQ are running the WA7MBL BBS systems with IBM PCs. WA7YAZ is on the air with an Apple based system. All stations are currently on 145.01 MHz.

MEMBERSHIP: UPRA membership dues are \$15 annually. Additional family members sharing a newsletter pay only \$1.00.

NEWSLETTER MATERIAL: This may be sent to the address listed below, or via several electronic routes, which are either ASCII text files on IBM formatted disks or via a BBS. Contact me via the phone number below for more information. Submission deadline is slowly creeping earlier each month...call for more info.

ADDRESS: For all UPRA business:

Utah Packet Radio Association
4382 Cherryview Drive
West Valley City, Utah 84120
(801) 967-5896



ORLANDO HAMCATION and COMPUTER SHOW



EXPO—CENTRE

500 WEST LIVINGSTON

FLORIDA STATE ARRL CONVENTION

MARCH 7, 8, 9, 1986

5:00 p.m. - 9:00 p.m. Friday (SWAP ONLY)

9:00 a.m. - 5:00 p.m. Saturday

9:00 a.m. - 2:00 p.m. Sunday

- Over 160 commercial booths representing the major manufacturers and dealers of Amateur Radio and Computer Equipment.
- Programs, forums and discussions held on all aspects of Amateur Radio and Personal Computers.
- HUGE indoor Swap Shop with over 600 Tables.
- Convenient Parking

VOLUNTEER EXAMINATIONS by C.A.V.E. V.E.C., SUNDAY, MARCH 9. Send Completed Form 610 and Photocopy of present license, \$4.00 fee to R.V. Mackey, C.V.E., P.O. Box 1598, Maitland, FL 32751 (Walk-ins accepted)

Free Parking Available Also for R.V. and Charter Buses

AL HUBER, KC4CT HAMCATION CHAIRMAN

P.O. Box 15142 • Orlando, Florida 32858 • (305) 422-ARRL

Pre-Registration

Prize:

Bird Wattmeter

The Pre-Registration Drawing
will be at

10:00 A.M.

SUNDAY, MARCH 9

You do not have to be
present to WIN!

PRE—REGISTRATION FORM

Orlando Hamcation and Computer Show

P.O. Box 15142, Orlando, FL 32858

I would like to Pre-Register for the Orlando
Hamcation, March 7-9

Enclosed is my check for:

_____ Hamfest Tickets @ \$5.00 ea. \$ _____
_____ Swap Show Tables @ \$20.00 ea. (3 Days) \$ _____
(eight foot tables) Total \$ _____

NAME _____ HAM CALL _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Monies must be received in Orlando no later than March 1st.

Self addressed stamped envelope required.

Children under 12 Free with Paid Admission

TOO GOOD TO BE TRUE?

PAKRATT™ Model PK-64

shown with enhanced
HFM-64 option installed



★ MORSE ★ BAUDOT ★ ASCII ★ AMTOR ★ PACKET ★

FIRST FIVE MODE DATA CONTROLLER

The Pakratt model PK-64 by AEA is the world's first computer interface that offers Morse, Baudot, ASCII, AMTOR and Packet all in one box (hardware and software included) at a price many competitors charge for Packet alone (from \$219.95 Amateur net). Do not let the low price fool you; coming from any other company but AEA it WOULD be too good to be true. The PK-64 works with virtually any voice transceiver. The Pakratt is the easiest of any to hook up and have operating in just a few minutes.

In Packet mode, the PK-64 offers virtually all the features of every other Packet controller on the market, plus many important features left out by others due to cost constraints. For example, we have included a hardware HDLC, true Data Carrier Detect (DCD), multiple connect with up to ten stations simultaneously and full implementation of version 2.0 of the AX.25 protocol.

Because the PK-64 was designed specifically for the Commodore 64 (or C-128 and SX-64) computer, we have been able to do many things not economically feasible with general RS-232 interface controllers. For ex-

ample, the Pakratt includes true split screen operation with on-screen status indicators and an on-screen tuning indicator.

ENHANCED HFM-64 MODEM OPTION

The standard PK-64 will operate all modes with a phase-lock-loop (PLL) detector roughly equivalent to all popular packet modems in the marketplace (except we have included extra filtering). The enhanced HFM-64 modem option offers true independent dual channel filtering with A.M. detection (like the famous CP-100 Computer Patch™). The enhanced HFM-64 option also offers a hardware LED tuning indicator (like the CP-100) and a front panel variable threshold control for setting maximum sensitivity under various band conditions. We recommend the HFM-64 option for anyone keenly interested in weak-signal heavy-QRM HF operation. For anyone desiring to operate FM RTTY with the standard North American tone pair or CW receive, the HFM-64 is required. The HFM-64 is field installable with no soldering or test equipment required.

WORKS WITH THE POPULAR C-64 COMPUTER

AEA designed the PK-64 around the

low-cost C-64 because of the special architecture features making it especially suited to Amateur Radio applications. The C-64 should not be viewed as a mainframe, but rather a very economical accessory to your data communications system. Many owners of expensive computers such as IBM, TANDY, APPLE, KAYPRO, ATARI, etc., are now buying the low cost C-64 and dedicating it to their operating position. They simply cannot find software for their machine that even approaches the power and user friendliness of the PK-64. Plus, think of the convenience of having only one controller and keyboard to go from one mode to another without having to re-do cabling!

The PK-64 is so complete that all you need to do is wire up a microphone connector to the end of a cable (provided) and you are ready to go. There is no need to track down special terminal software, cabling or even a power supply. It all comes with the PK-64. So do not be the last on your block to own the most exciting new product in years. See the PK-64 at your favorite dealer or write for our specification sheet now.

*Prices And Specifications Subject To
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